DOCUMENT RESUME

ED 184 570 IR 008 260

TITLE	ECOS Process for Curriculum Development.
INSTITUTION	Putnam and Northern Westchester Counties Board of Cooperative Educational Services, Yorktown Heights, N.Y.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C.
NOTE	40p.
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	Change Agents; *Curriculum Development; Educational Development; *Educational Improvement; Evaluation Methods; *Instructional Innovation; *School Community Programs
IDENTIFIERS	National Diffusion Network Programs

ABSTRACT

This booklet details a methodology for infusing almost any subject into a school district's ongoing curriculum. The process involved three interrelated parts: infusion, community, and stewardship. The infusion component makes it possible to upgrade teacher's skills, improve classroom management, strengthen community-school cooperation, and diffuse knowledge and techniques throughout the school system with little or no disruption to existing programs. In the community component, teachers and students work together to identify community resources and use them as part of their learning environment. A major component of the ECOS process, stewardship has been defined as the development and application of a system of management; a major objective of stewardship is to involve participants, faculties, students, and community members in personal responsibility for the solution of local problems through community action. The total plan also includes strategies for dealing with change and innovation, techniques for staff development, and an evaluation plan. The application of the ECOS process in curriculum development is discussed, and specific guidelines are provided for the areas of environmental, career, energy, nutrition, consumer, drug and alcohol, gifted, and special education. (Author/JEG)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED184570

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ECOS PROCESS

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

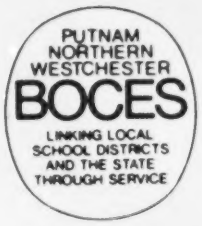
Frank Thompson

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

FOR CURRICULUM DEVELOPMENT

IR008260

2



BOARD OF COOPERATIVE EDUCATIONAL SERVICES

YORKTOWN HEIGHTS, NEW YORK 10598 (914) 245-2700

DR. JOHN J. BATTLES
District Superintendent

HOPE W. LEVENE, *President*

ARLYNE B. BERKMAN

GERALD MARVIN

ALBERT ROSSELLI

FRED C. SCHNEIDER, *Vice Pres.*

HERBERT J. SULLIVAN

CHARLES W. WARD

The work presented or reported herein was performed pursuant to a Grant from the U.S. Office of Education, Department of Health, Education and Welfare. However, the opinions expressed herein do not necessarily reflect the position or policy of the U.S. Office of Education and no official endorsement by the U.S. Office of Education should be inferred.

THE ECOS PROCESS
FOR
CURRICULUM DEVELOPMENT
by
THE ECOS TRAINING INSTITUTE

Institute Director

F. THOMPSON

Institute Staff

E. CATHERALL, *Ecologist (Editor)*

J. ESPOSITO, *Technical Assistant*

E. GARRY, *Nutritionist*

A. GOLDHAMER, *Curriculum Specialist*

L. HIGGINS, *Technical Assistant Analyst*

M. SCHWARTZ, *Community Relations Associate*

R. SCHWARTZ, *Curriculum Specialist*

D. SULLIVAN, *Non Public School Consultant*

S. WALKER, *Research Assistant*

CONTENTS

	Page
Introduction to ECOS	1
The ECOS Process: Infusion	2
The ECOS Process: Community	4
The ECOS Process: Stewardship	6
An Agent for Change	7
The Human Element in the Change Process	10
The ECOS Training Workshops	13
ETI Workshops: Six Steps to Infusion	15
Evaluation	18
Applying the ECOS Process	22
The ECOS Process in Environmental Education	24
The ECOS Process in Career Education	26
The ECOS Process in Energy Education	28
The ECOS Process in Nutrition Education	29
The ECOS Process in Consumer Education	31
The ECOS Process in Alcohol and Drug Education	32
The ECOS Process in Gifted Education	34
The ECOS Process in Special Education	35

INTRODUCTION TO ECOS

Project ECOS was initiated by the Putnam and Northern Westchester Board of Cooperative Educational Services (B.O.C.E.S.) in 1971 as a federally funded project to create a process by which school districts could develop new programs (e.g. environmental programs) with minimal disturbance to local schools and the community. The proposal was funded under Title III of the Elementary and Secondary Education Act.

Originally the project was confined to Putnam and Northern Westchester and the ECOS staff under the direction of Dr. Francis J. Thompson helped schools infuse environmental education into their existing curriculum. Among their early programs were the monitoring of water, air and land, establishing outdoor classrooms and recycling centers. They held workshops and seminars for teachers, administrators, students, local community members, and business executives.

ECOS Training Institute

So successful was Project ECOS that three years later, in 1974, ECOS became a nation-wide program known as the ECOS Training Institute (E.T.I.) federally funded through the National Diffusion Network (NDN) and through Title IV-C in New York State.

The National Diffusion Network is a nation-wide system established to assist schools improve their educational programs through the adoption of already developed, vigorously evaluated, exemplary education projects. The NDN operates through the interaction of two kinds of funded projects, Developer Demonstrators (D/Ds) and State Facilitators (S.F.s).

Developer/Demonstrators (D/Ds) are staff who were involved in the original development of exemplary education programs approved by the Joint Dissemination Review Panel (J.D.R.P.) and funded by the U. S. Office of Education for the purpose of helping schools in their own state and other states to adopt the particular program. The Joint Dissemination Review Panel (JDRP) is a panel of federal evaluation experts that reviews and approves exemplary education projects for dissemination by the NDN.

The State Facilitator (S.F.) is the primary link between educators and D/Ds. The State Facilitators first create awareness, within their state or region, of exemplary educational programs particularly those funded as D/Ds. S.F.s then help interested school districts match their local needs with the exemplary programs and facilitate training and implementation.

What does the name ECOS mean?

Ecos is a Greek word meaning nest, it is also the root word for ecology, ecosystems, etc. It was natural therefore that Project ECOS dealing originally with environmental education projects should find its roots in Ecos. It could inject into the classroom ideas that the planet Earth is in fact a spaceship nest and the need for humanity to keep the air, water and land that makes up the nest in good condition. Also the ECOS Training Institute would be the nest that would nurture curriculum development projects until they were ready to fly. The acronym ECOS stands for Education, Community Opportunity for Stewardship.

THE ECOS PROCESS: INFUSION

Through a unique process of infusion developed by the ECOS Training Institute (E.T.I.), desired educational changes are effected within the existing system with the minimum of disruption. With the ETI infusion process it is possible to upgrade teachers' skills, improve classroom management, strengthen community-school cooperation and diffuse knowledge and techniques throughout the school system with little or no disruption to existing programs.

If teachers wish to infuse new concepts and activities into *their* existing program, then the infusion must first take place at the concept level. Since concepts cover a wide spectrum of areas, no one discipline has a monopoly on its meaning. Therefore the same concept can find application to many different disciplines. The new program to be infused is called "the intruder." This program may be career education, environmental education, nutrition education or drug and alcohol education, but which ever it is, this program is composed of key concepts to be taught which must be identified and clearly defined. Unless these new concepts are compatible with the concepts of the established on-going programs, new educational activities will remain as additions and never be fully integrated into the established educational experience.

The infusion process is most likely to succeed where the concepts being taught in the on-going program and the concepts of the intruder program match.

The teacher will need to examine and identify the key concepts of both the established programs and the intruder program, which is the one to be infused, to link the areas that are compatible; then develop only activities which will blend the intruder programs with the old. The underlying hypothesis is that whatever has endured the test of time in an individual school or classroom is basically right for that school or teacher and will thus represent the strongest foundation for the infusion of new concepts.

The ECOS process ensures that the activities which are developed will spring from and reinforce the underlying educational concepts of the school, teacher and curriculum. This process then enables both the teacher and the curriculum to be refreshed and renewed.

The ECOS process makes certain basic assumptions:

1. That established systems resist change.
2. That change requires the broadest possible commitment of social, intellectual and material resources.
3. That every community contains a core of students, teachers, administrators and concerned citizens having the essential goals and means to solve community problems.
4. That individuals need to see concrete results and accomplishments. "Nothing succeeds like success."
5. That new programs are successful in those areas where key decision makers are committed to the program.
6. That infusion into existing curricula is more successful than the introduction of new courses.

7. That good educational practices within a system often go unnoticed, therefore not diffused, resulting in lost potential.

The Selection of Program Units for Infusion

In order for infusion to take place, intruder material must be infused into a suitable unit in the already established program. The criteria for the selection of a suitable unit are:

a. Those units of content where subject matter coincides or overlaps with the material of the intruder.

b. Those units which the teacher found most satisfying or successful in the past because it is these units that they teach most enthusiastically.

c. Those units that, from the teachers experience, have not worked as successfully as they would have liked are the units that could benefit most from the infusion of new material.

d. Those units that lend themselves to active student participation in the management and solution of problems.

e. Those units that lend themselves to an involvement with the community.

f. Those units not identified above that teachers think would benefit from the infusion process.

E EDUCATION
C COMMUNITY
O OPPORTUNITY for
S STEWARDSHIP

THE ECOS PROCESS: COMMUNITY

The overall success of the infused curriculum depends upon an interchange between the school community and the larger outside community containing the school. In the ECOS process teachers and students work together identifying community resources and using them as part of their learning environment.

Much of what now happens inside the classroom could be moved into the community as students, working with adults, become employed in a productive capacity to deal with community problems. Schools have frequently been reluctant to reach out to the community, but there has been a growing recognition of the benefits which accrue as the result of collaboration. Schools need input from the community. Students need a low risk setting in which to develop and practice community-based skills since they will be the decision makers of the future.

Community Based Learning

Community based learning is valuable to both teacher and student because:

1. It encourages learning by inquiry and discovery rather than by rote.

2. It strengthens motivation for the learner by providing contexts of importance to the learner. It broadens the range of learning opportunities for all types of students.

3. It is experientially based, thus enabling students to learn by doing.

4. Abstract learning is made concrete and traditional skills are practiced and reinforced: e.g. language arts skills assume greater relevance when used to interview a town official or to design and administer a community survey.

5. The community assumes an ever increasing role as an educational resource; it becomes the laboratory for studying man-made and natural systems.

6. It offers extensive resources to students and teachers not available in the self-contained classroom.

Lines between school and the community are already blurred. The traffic goes two ways: students explore learning situations in the local environment while community members bring to the classroom their knowledge, experience and expertise. Ideally, from this interaction evolves cooperative efforts to solve local problems.

In the ECOS process, the community becomes an arena for achieving stewardship. The role of the teacher assumes new dimensions. The teacher becomes a facilitator and assumes the task of initiating and maintaining the school/community synergy.

Community has many definitions. We all belong to different communities at different periods of our lives and many overlapping communities at the same time. The community is a group of people in a specific location who interact with each other. If a school interacts with its community it will be able to utilize people, places and things as a teaching resource.

The School as a Community

The school, buildings and site, constitutes a community within the larger community which it serves. As such it should not be overlooked as a resource. It is a learning center, but it is also the first community outside of the home which the student knows and in which the student functions. The people, custodians, librarians, cafeteria employees, bus drivers, nurse, and physical facilities are resources to be utilized in designing learning experiences for students.

Community Based Activities

School-community interaction is a process including:

1. The specification of the school's educational goals;
2. The determination of which of these goals are held in common with the community;
3. Identification of goal-related resources in the community;
4. The formalization of communications between the community and the school;
5. Agreement on activities and strategies in the light of constraints;
6. Devising a means of evaluating the results of the interaction.

Activities such as field trips or the use of a classroom speaker will give the student information that they will not obtain from other sources.

Community Activity Councils

Community advisory councils are effective in building community support for education programs. Councils are most useful when they are involved in long term, on-going projects. For maximum effectiveness advisory committees must be encouraged to give their own input instead of rubber stamping a pre-conceived design and plan. Although you will be communicating your needs to the council members, they must also feel comfortable about expressing their opinions, asking questions, making suggestions, and finding alternatives.

Since one of the goals is to provide stewardship opportunities for students, they should be working directly with the adults on the advisory council. By observing and working with adults, students can develop some of the community skills that they will need as decision makers of the future.

The Role of an Advisory Council

Council members can help with activities such as: advising on policy; acting as resource people; helping to plan and develop activities; conducting field trips; fund raising; assisting in publicity; developing community support; suggesting programs; finding internship possibilities for students.

Risks and Constraints

Some issues in any community are controversial and for that reason there is a degree of risk to both students and teachers in action-directed programs. The most successful projects are those that start as low risk so as not to provoke controversy in a community. The ECOS Training Institute advises teachers to "think small" in the beginning, and to move slowly, building a base of support as they go. As support is gained they will become more effective in the community.

Risk taking can be minimized. The best protection is knowledge: knowledge of the community and its power structure, knowledge of the school policy, knowledge of local newspapers bias, and knowledge of what "trade-offs" are possible.

THE ECOS PROCESS: STEWARDSHIP

Stewardship, a major component of the ECOS process, has been defined as the development and application of a system of management. A major objective of stewardship is to involve participants, faculties, students, and community members in personal responsibility for the solution of local problems through community action.

The process of stewardship builds proficiency in problem solving and associated skills by involving students in inquiry and decision making processes at increasingly sophisticated levels of operation. Thus the student becomes an experienced decision maker, confidently accepting responsibility.

Stewardship develops a sense of community commitment and service. It should enlist the cooperation of local community leaders, promote programs that foster cooperation among diverse interest groups, and engender self awareness with personal involvement and responsibility in all concerned.

The Sequence of the Stewardship Process

Students, teachers and community members who become involved in the stewardship process will see that its development follows a typical pattern. This pattern is composed of the following stages:

Stage 1. Awareness: Here the stewards become aware of a particular problem.

Stage 2. Information: The stewards will collect all the available information on the particular problem and try to assess its course.

Stage 3. Problem definition: The stewards will decide on the size and scope of the problems that they intend to deal with. Then decide on possible solutions and alternative strategies.

Stage 4. Task assignments: The stewards will assign the various tasks to the participants and agree on the time line for results.

Stage 5. Evaluation: The stewards will observe the results of their efforts, communicate all the relevant information to all concerned and finally evaluate the results of their work on a particular problem.

The Teacher Facilitator

The teacher facilitator in a stewardship program must feel comfortable being part of the team and learning the necessary skills with the team members. The teacher should see that the stewards' program is a direct response to community needs. Stewards should feel that the information that they are collecting and the management that they will propose will not be rejected without close examination.

Communication

It is essential for the success of a stewardship project to establish a close rapport between the stewards and the community members. Therefore the free exchange of all information among all participants, administrators, faculties, students and the community is an important part of a stewardship program.

AN AGENT FOR CHANGE

The ECOS process is an agent for change. Change, personal and organizational is inevitable. No two days in the life of a person or organization are the same. Therefore what is important is the rate of the change, the size of the change and the direction of the change. That people totally resist change is a myth. People are dynamic creatures who thrive on change as long as their integrity is protected. If any resistance does occur it will be from people who are trying to alter the rate, direction or size of the change, therefore they are themselves becoming part of the change.

Change should never be approached without full attention being paid to the human and social aspects of the community as well as the technological details of the change. Implementing change is not achieved through sequential actions. People's fears must be quieted. The purpose of the "Intruder Model" is to provide a framework for the change agent, and to serve as a reminder that what people say is often not what they think, feel or fear.

Indentifying an Intruder

Any new program or individual introduced into a system or organization is an Intruder. The basic concern of a person facing a major change is how they foresee the change affecting them. Therefore change, however slight, disturbs the equilibrium of a group and intrudes upon that group. Education takes place in a dynamic environment of changing individuals and is faced with more change than most organizations.

For example, teachers are always seeking new ways that will help them become more effective teachers.

The Intruder Model

There are various access points for the intruder to enter a school system.

Access Points

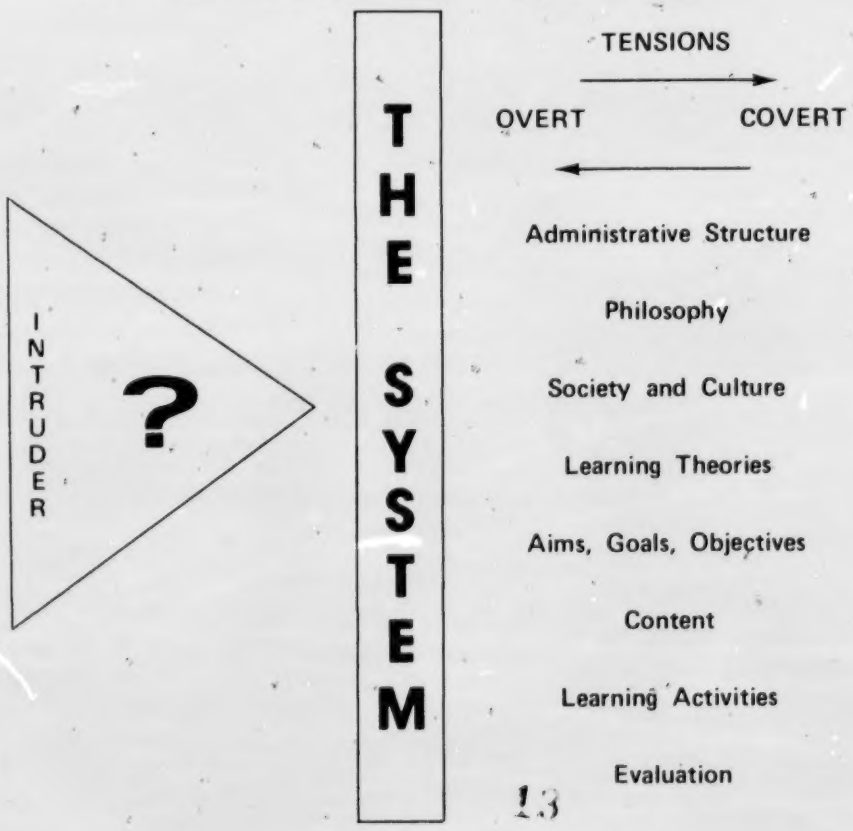
1) Board of Education	INDEPENDENT ACCESS POINTS FOR CHANGE
2) Administration	
3) Teachers	
4) Students	
5) National Priorities	
6) Community Priorities	
(a) Subject Matter i.e. curriculum	DEPENDENT ACCESS POINTS FOR CHANGE
(b) Materials and activities	
(c) Facilities	
(d) Time available	
(e) Aims, goals and objectives	

Most changes use more than one access point. Many changes are made through the "dependent" access area, i.e., changes of curriculum, activities, aims, goals and objectives, but these changes often do not succeed in the long term because they also require changes in the "independent" access area. The most vital access points are the administration, teachers and students because these are the people most likely to be effected by the change. If these independent access points are approached and convinced of the change then changes in the dependent area can be facilitated.

The intruder has to penetrate the system via the access points in order to change the system. This penetration can be encouraged or resisted overtly or covertly. It can be resisted at many places and levels by:

- the administration
- the philosophy of the school
- the community
- the learning theories
- the stated aims, goals, and objectives of the institution
- the conflict of content
- the present learning activities
- the evaluation methods currently employed

INTRUDER MODEL



The Administration

It is almost impossible to institute change if the administration is against the change either overtly or covertly. Ideally a change agent operates much like a doctor. Symptoms are identified and described in terms of the underlying malady to which treatment can be prescribed. Once the change diagnosis begins to move into action, the treatment should be instituted by educators within the school. These educators are referred to in the research literature as linkers or linking agents. These linking agents are trained in the processes of change but are an integral part of the system being effected, so they are identified with, and have a vested interest in the school system.

The most crucial test of administrative support is in the field test phase. Practices should have been approved by the administration to provide an information flow to all parties needing feed back, as well as a reward system to reinforce desired change behavior.

Philosophy

Change agents must first carefully determine the basic philosophy of a school district before introducing change. How is the school oriented? Which approach to learning does the school and its faculty emphasize?

Society and Culture

The society and culture of the community is reflected in the school system. To introduce major changes that run against the local culture and society usually needs legal statute and legal enforcement. Even then the local community will try to circumvent the change. Obviously most changes will be in tune with the culture of the community and if seen as such will usually get community support.

Aims, Goals and Objectives

There has been a great emphasis on identifying the aims, goals and objectives of education in recent years. Usually these are helpful guides as to what is actually taking place in school but occasionally they are just wishful thinking and bear little resemblance to the covert aims, goals and objectives actually being taught.

The change being advocated should have its aims, goals and objectives clearly and accurately defined.

Content

Human knowledge continues to expand so that there is a constant increase in what is known. This results in pressure to increase the content area of a syllabus or curriculum. In order to keep the content at a realistic level all curricula undergoes constant revision, new knowledge added and hopefully some less essential knowledge removed to make room for the new. Minor changes of content occur spontaneously. Major planned changes of content require a process and are best made via the ECOS Training Institute Infusion Process.

Learning Activities

Teachers are constantly changing the educational activities for their students. There are always improvements to be made, often by the students own ideas and suggestions. Change prevents the teaching from becoming stale and stimulates the teacher.

Evaluation

Introducing a major change has implications for evaluation. It may require changes in evaluation techniques but whatever change is finally implemented it is vital that the effect of the change be evaluated.

THE HUMAN ELEMENT IN THE CHANGE PROCESS

Change is a social rather than a mechanical or technical phenomenon. Change always has social implications, and the change agent must analyze the system to be penetrated, especially at the access points.

Organization of Education

Most teachers know the formal organization of education and their position on a formal organization chart. The formal organization helps to define roles and responsibilities and is a useful tool in determining who does what. It is not a chart of where the power is, or the best access point for change. The change agent needs to know how the informal structure in the system operates, where are the power factions in order to gain the true access points.

The change agent needs to know the communication patterns, the informal leaders, the tensions and possible protagonists and antagonists. Careful observation reveals luncheon partners, games partners, committee members and social liaisons. Eventually the change agent will be able to draw up lists of sub sets of individuals who will be most affected by the proposed change.

Areas of Tensions

Every school system exists in a state of dynamic equilibrium. Its goals, procedures and prejudices are being created and directed by the individuals in the system. For this reason a change agent must investigate the overt and covert areas of tension. This investigation must be a real investigation. Do not rely on what you are told. For example, chief school officers are competitive and articulate, and they may express a sincere desire to create an environment within the school which will stimulate human and organizational growth. In practice they often create managerial controls that have the opposite effect and are designed to avoid conflict with the school board or outside community. Here then is overt and covert control, a conflict between what is said and what is done.

Identifying Allies and Antagonists

A change agent must identify the types of individuals within each target population:

1. Advocate
2. Pace Setter
3. Disciple
4. Adopter
5. Resister
6. Laggard

The Advocate

The advocate is a well known member of every organization. When any new idea is in vogue the advocate pushes the idea to a priority. Unfortunately, any idea that the advocate proselytizes is branded by his colleagues as a fad. Although the advocate is an ardent supporter the change agent must be wary of using the advocate until the change has gained credibility with other groups.

Pace Setters

Pace Setters have confidence in their

ability to perform their duties and have a high esteem for their intelligence and decision making abilities. They are ideal to field test or role play the proposed change. Pace setters should be treated as colleagues of the change agent and their opinions utilized.

Disciples

Disciples are often past pace setters but their self esteem has suffered. This is often the result of a shift in administration which has detracted from their reputation because they were pace setters in changes instituted by a previous administration. Disciples are usually quick to join pace setters and become pace setters again and so are useful allies.

Adopters

The Adopters are the vast majority of any organization population. This group will eventually become involved with the change under these conditions:

1. The pace setters have taken all the risks.
2. The pace setters and disciples have shown success.
3. The change is formalized to a point where directions, check lists and process can be followed.

Adopters will remain neutral unless their role within the organization appears threatened, then they will become antagonistic. It is essential to keep the adopters fully informed through the formal and informal communications systems so that a constant flow of positive information on the change, its purpose, its range and its effects eventually convinces them.

The Resisters

The resisters have a strong vested interest in preventing the proposed change. There is something in the present system that gives them greater advantage or they have been personally involved in the technology or system being altered. Resisters should be avoided.

The Laggards

Laggards take no risks, are listless and refuse to get involved. The change agent does not know the personal circumstances of the laggard. Their state of health and personal cares can make many people laggards at some stage in their careers. Do not be drawn into their problems. Laggards should be ignored.

Change Agents: Insiders or Outsiders?

Whether or not to hire outside consultants as persons directly charged with introducing and implementing the desired change is a decision that should be based on several factors:

1. The availability of the current staff to act as a change agent.

Does the staff have available members who have the time and expertise and could be as effective as outsiders?

2. The administrative or technological complexity of the proposed change. Could insiders do the task?
3. Finance.

Can you afford a consultant? Using an insider is not cheap. If the insider is acting as a change agent that person will not be effective in their current job. The financial consideration is the difference in costs between an insider and an outsider.

4. Provisions for technical assistance throughout the implementation phase.

A consultant is usually able to offer more assistance than an insider. The

success of the innovation often depends on the quality of the technical assistance during the implementation phase.

Hiring an outside consultant has many advantages as through their experience they can spot and prevent future problems. However consultants are often hired to prevent change. The target audience can unite against the outsider, sabotage the change and then blame the consultant as an outsider who was unaware of their problems and all the implications of the change.

Strategies for the Change Agent

1. Consider the districts' history of change.

   Is the environment one of innovation?

   Are changes legislated by the administration?

   Are changes generated by teachers?

2. Analyze the potential change. Are you fighting the symptoms or the disease?

   Who will really be affected by the change?

3. Compare the schools formal and informal structure.

   Identify the key people.

   Into which categories can you place the key people?

   Are there a viable number of pace setters?

4. Guarantees of support and freedom from administration.

   Does the administration really want the change?

   Is the administration actively supportive?

5. Start small.

   Use a sub unit as a model. This will build confidence in the efficacy of the change. Role play the change to elicit questions and problems before they manifest themselves in practice.

6. Build ownership into the change. This way the change becomes infused and part of the normal work pattern.

ECOS TRAINING INSTITUTE WORKSHOPS

ECOS Training Institute Workshops are training sessions, usually of one to three days duration, engineered to solve problems in curriculum design and management. They are meant to aid public and non public school administrators and teachers in meeting a wide variety of educational challenges on all grade levels.

Trained teams of E.T.I. personnel in cooperation with school and community leaders analyze educational needs in a given school district and tailor programs to meet those needs on an individual district basis.

Through a unique process of infusion; developed by E.T.I.; desired educational changes are effected within the existing system with minimum disruption. With the E.T.I. infusion process it is possible to upgrade teachers' skills, improve classroom management, strengthen community-school cooperation and diffuse knowledge and techniques throughout the school system with little or no disruption to existing programs.

The E.T.I. process makes possible curriculum innovation without additional funding, staffing, materials or programming.

Workshop participants actively engage in curriculum design, stewardship and community activities. Yet the program adapts to any teaching style because the teacher uses existing curricula as the basis for educational change and student involvement.

Through a step by step process educators can implement change without discarding already established programs. The ECOS process merges new and old at the expense of neither. In fact the synergism produced enhances both disciplines, the intruder and the intruded, to the benefit of educator and student.

The E.T.I. Workshops are designed for flexibility. Each district can select and adapt ECOS components to its own needs. The E.T.I. teams come prepared with a needs assessment of the district based on information provided for them prior to the workshop. Each workshop is tailored to individual district needs with the district director working in close consultation with E.T.I. staff.

The E.T.I. staff are available for technical assistance follow up after the workshop and for at least six months later. The staff are also on call for problem solving throughout the implementation phase.

ETI Workshop Goals

The goals of the ETI Workshop are:

1. To assist school districts and school personnel in tailoring the ECOS process of curriculum infusion to their own needs.
2. To aid in redesigning existing educational programs in order to take full advantage of governmental, professional and community resources.
3. To facilitate student involvement and experience in the decision making process using the community as a classroom and sharing resources.
4. To involve teachers in the process of curriculum design so that they may:—

(a) better manage their learning resources,

(b) utilize community resources,

(c) encourage student inquiry leading to stewardship,

(d) provide direction in career education.

The Criteria for Selection of Workshop Trainees

Teachers, administrators and community leaders from local public school districts and non public schools are eligible for training.

It is recommended that those offering themselves for training should be available for the duration of the workshop and should be those with professional contacts and relationships with other teachers and educators in the district.

What is the Ideal Workshop Team?

Ideally the team should be composed of advocates and pace setters. A multi disciplinary team of three to six teachers on any grade level (K-12) preferably from one building plus a building administrator, a resource teacher and a community leader who can act as an additional resource to the team.

Obviously an ideal team is not always possible but the team selected should be prepared to devise an infused curriculum guide: where the intruder is infused with the current curriculum.

The infused curriculum should contain student activities, demonstrate school community links, stewardship, diffusion within the district and a time line for implementation.

Training of Trainers

Special training workshops are set up occasionally to train someone to run their own ETI workshops. This training of trainers leads to the development of satellite centers such as the one established at Quincy, Illinois.

ETI WORKSHOPS: SIX STEPS TO INFUSION

The ECOS process of infusion is interdisciplinary and is applicable to any discipline. The infusion of the new material into the present curricula has six basic steps.

Step 1. *Preparatory Phase.*

(a) Outline your current educational philosophy.

(b) Outline your present goals.

(c) Define your present specific aims.

(d) Bring with you your current course content.

Step 2. *Select the Units to be Infused*

Criteria for selection are:

(a) Similar content.

(b) Present units need improving.

(c) Present units that are most successful.

(d) Units that have active student participation.

(e) Present units that have a community involvement.

(f) Other reasons.

Step 3. *Define Your Concepts*

(a) Identify key concepts from your selected units.

(b) Identify intruder concepts.

(c) Link key and intruder concepts.

Step 4. *Activities*

(a) List activities from your selected units, taken from the content containing key concepts.

(b) List the activities from the content of the intruder discipline containing the intruder concepts.

(c) List the new infused activities.

Step 5. *Program Management*

(a) What are your resource needs?

(b) What administrative support is needed?

Step 6. *Evaluation*

(a) What evaluation material is available that is applicable to the new curriculum?

(b) How effective is the new course?

Preparatory Phase (Step 1)

Philosophy

Your educational philosophy is an ongoing synthesis of many factors: your life style, your education, your knowledge of how students learn, your experience, the community in which you live and the community in which your students live. All these influence what you teach and what you expect your students to learn.

Goals

Goals are the application of educational philosophy to the subject mat-

ter. Every statement of education philosophy does not necessarily lead to an educational goal for a given course of study, neither are all goals of equal importance, nor applicable to all course work. However, it would be difficult to set goals which are not in harmony with your educational philosophy.

Aims

As philosophy gave rise to goals so aims are derived from goals. Specific aims arise from general goals. An aim is a statement of performance we hope that students can achieve. We can have these aims for a whole class, a group or an individual student. As an aim students might be expected to acquire certain knowledge, master particular skills and develop certain attitudes.

Course Content

The course content is the subject matter of the discipline being taught and is often arranged in units. Sometimes the course outline may be dictated by state, district or community mandate or may be selected by the teacher as being suitable for the age, aptitude and ability of the students.

Selection of Units (Step 2)

A Unit

A unit is a segment of the course. In the infusion process it is best to start with a small unit of work so that the workshop trainee can concentrate on learning the ECOS process.

Definition of Concepts (Step 3)

A Concept

A concept is an abstract idea, a generalization derived from the comparison of particular instances. It is important to clarify concepts by describing the contexts in which they occur, because by nature concepts are not tied to specifics but are open to numerous applications and interpretations. The use of a concept statement, that is a sentence limiting the concept, prevents major misunderstanding.

Linking Key and Intruder Concepts

It is a basic assumption of the ECOS infusion process that success is most likely to result where the concepts being currently taught and the concepts of the intruder match. The similarity of concepts will ensure that the activities (which are derived from the concepts) no matter how different they appear to be, will be reinforcing the same underlying ideas. Therefore the unity and integrity of the learning experience is thus maintained and reinforced.

Activities (Step 4)

The activities which are carried out by the students are the visible part of the learning experience. Having listed the activities from the selected units and the activities from the intruder discipline, the activities are then placed in a sequence. Obviously if you add the two lists together you have doubled the length of the course. Having the total list it is possible to select those activities you wish to teach, those activities you wish to keep in reserve and those activities you wish to discard.

It is essential that the list of activities that you finally wish to teach takes up no more time than your current teaching of the unit. Infusion is not an add-on!

Program Management (Step 5)

The purpose of this step is to complete the planning of the program listing all the resources, technical

assistance and administrative support required to ensure that the new infusion curricula can be taught.

Evaluation (Step 6)

It is assumed that responsible educators will determine procedures for monitoring students involvement with the activities, their progress and their knowledge. Just as the currently taught material was evaluated so also should the new infused curriculum. Both formative and summative evaluation procedures will be utilized in assessing the extent to which learner outcomes have been reached.

EVALUATION

Curriculum evaluation should always include self evaluation. This self evaluation should be concerned with the aims, goals and objectives of the program as well as the philosophy of the school. Since education is a dynamic process constantly undergoing change, there must be a regular review of the aims, goals and objectives to keep them in tune with the needs of the school community, the local community, the nature of learning and the stated goals of the education system and profession at large.

To evaluate curriculum it is necessary to measure its status or development and to determine the value of this status or development. For qualitative measurements various psychometric devices may be used. However, to determine value requires the use of both judgment and standards. In order to do this two basic ingredients are necessary:

1. A statement of the aims, goals and objectives of the curriculum.

2. A quantitative and qualitative determination of the physical, social, emotional, mental and spiritual growth of the students.

Quantitative evaluation must measure the outward behavioral change in students that is reflected in an inner behavioral change. These measurements of behavioral change require a process that determines the environmental and personal factors that influence the behavioral change. Unless there is a change in student behavior no real education has taken place. As well as behavioral change, the educator must also know how the students' present performance differs from the previous performance. This is measured by pre and post testing.

Measurement of Student Progress

There are many ways of measuring student progress: –

1. Objective and essay classroom tests.

2. Standardized tests.

3. Checklists, grading scales, inventories and questionnaires.

4. Observation, anecdotal records, interviews.

5. Sociometrics, sociodrama and autobiographies.

6. Case studies, case conferences.

7. Photographs, diaries and logs.

In addition to evaluating students progress the ECOS process also enables the educator to evaluate their own progress after training. Depending on the availabiliy of resources, finance, administrative support and the necessary time the educator should be able to :

1. Develop an infused curriculum guide.

2. Carry out pre and post tests of students.

Infused Curriculum Guide

An infused curriculum guide is a document that demonstrates the user's familiarity with the ECOS process. It is a basic step in adopting or adapting the process to local needs. All curriculum guides have the following elements: title; table of contents; preface; philosophy or rationale; aims; goals and specific objectives; infused units (content) includ-

ing activities; a resource appendix; and an outline of evaluation methods.

The Testing Program

The purpose of the testing program is to measure behavioral change. This can be seen as a significant change of attitude between the results as measured in pre and post tests. The program is a success if during this period of significant behavioral change there has been no loss of basic skills as evidenced by a comparison of the results of the local districts own tests of basic skills.

ECOS Environmental Awareness Tests

Two tests were developed by Magi Educational Services to measure "ecological awareness" of students and are presently available only to E.T.I. replicating districts.

The Expressing Current Opinion, (ECO) Test consists of 48 items covering ecology, political, legal, economic, social, military, and consumer concepts related to environmental education. Twenty four (24) items form the basis of the ecological awareness appraisal. The reliability coefficients fell in the range of .50, .60 (KR-20) for this test. The ECO test is for use with students in grades 7 through 12 and has a pictorial multiple-choice format which yields a maximum raw score of 24.

The IF Test is a 15 item pictorial multiple-choice instrument designed to measure environmental awareness of students in grades K-6.

The use of the above mentioned tests is crucial to the measurement of attitudinal changes of students exposed to the ECOS program. Teachers and administrators can use the data collected along with achievement test scores for groups of students on a pre-post basis to determine not only that there is no loss in basic skills, but there are possible gains beyond expectation.

Students taking the ECO and IF tests should not be told they are taking an environmental awareness test otherwise they may answer questions based on what they think the teacher wants rather than the way they feel.

Project ECOS Measures of Success

TARGET POPULATION	INSTRUMENT	STANDARD FOR ASSESSING SUCCESS
K-6	IF TEST	Significant gains at .01 level between experiment and control on post test.
7-8	ECO Test	SAME AS ABOVE
9-12	ECO Test	SAME AS ABOVE
K-6	(Enter district achievement tests)	Significant gains at .01 between predicted and actual score using historical regression model.
7-8	SAME AS ABOVE	SAME AS ABOVE
9-12	SAME AS ABOVE	SAME AS ABOVE

Districts who are willing to develop an infused curriculum guide, administer pre and post tests, identify an experimental and control group, where possible, and have available test scores in basic skills (reading and math) will be considered replication districts.

Testing Procedures

It is suggested that, when you are piloting an innovative program, the total student population should not be exposed. A total of 50 to 60 students in each of *two* classrooms (25-30 students per classroom), should comprise the experimental and control groups. The district should secure a control group from within the school district. In any event, the district is urged to take the initiative in control group selection. However, an alternative selection procedure might be two classes in a neighboring district as the control if there is a match on such critical factors as: socioeconomic factors, environmental situation, and academic range.

1. Tests will be provided to school districts on a loan basis only, during the pilot test phase.

2. Test booklets should be returned to E.T.I. after test administration and scoring.

3. E.T.I. will send tests to districts after there is sufficient evidence that there is readiness for pilot implementation.

4. At least 50-60 students in two classrooms (25-30 students per classroom) will comprise the experimental and control groups.

5. If possible, the district should secure a control group within the school district.

6. As an alternative to in-district selection of a control group, approximately two classes in a neighboring district may serve as the control group if a similar student body is identified in terms of socioeconomic factors, environmental situation, and academic range.

Testing the results of E.T.I. is important to school districts in order to insure quality in providing data on possible gain of basic skills as a result of infusion of environmental awareness. Therefore, it is important to know the number of classes being tested, and level of instruction: elementary or secondary.

Therefore, it is important to gather data on:

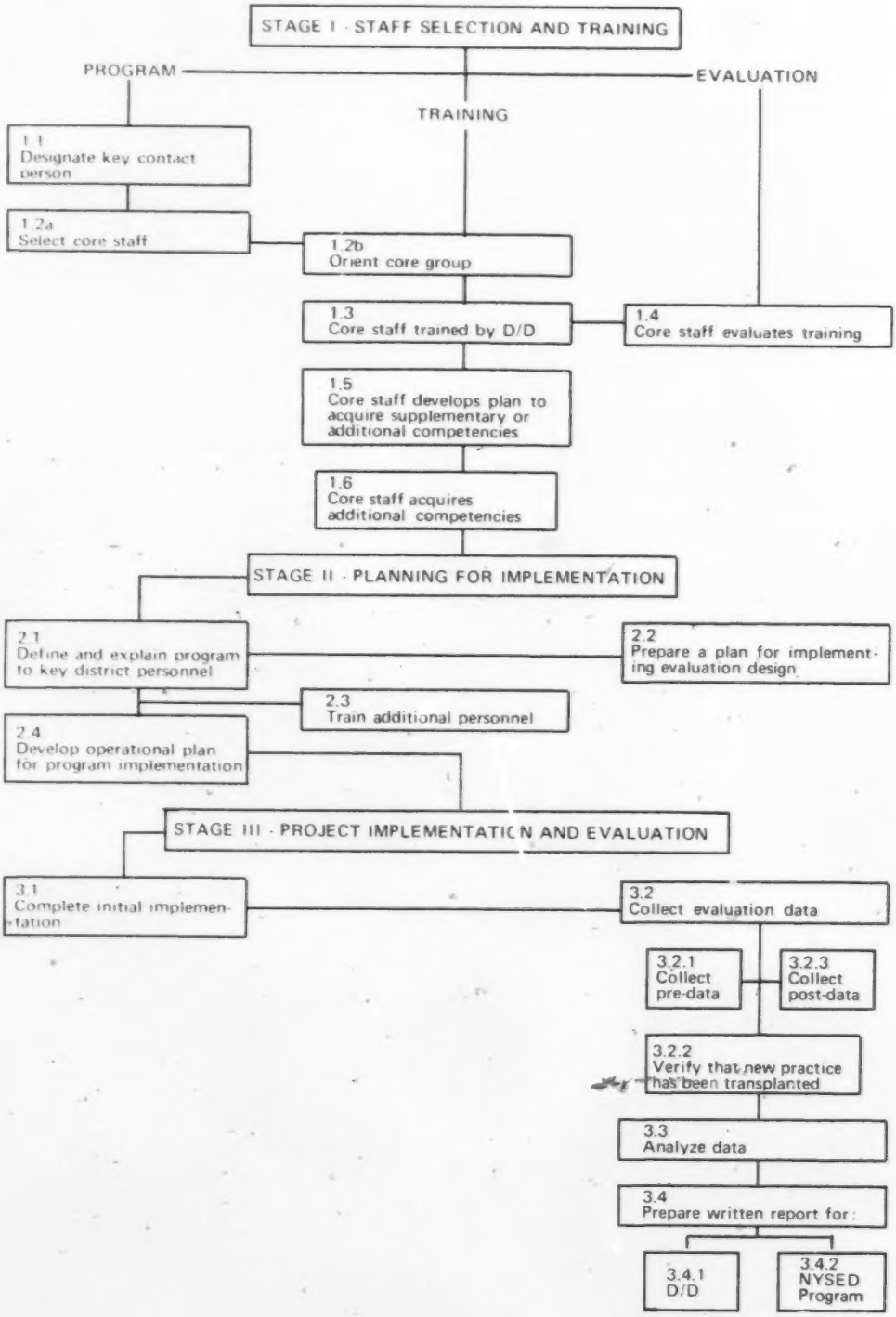
- Number of classes being tested
- Level of instruction (elementary or secondary)

If the district is piloting a K-12 program, the sample should include at least two grades with a *minimum* of at least two classes in each participating grade. Therefore, the experimental sample size for testing would be 120 with at least one elementary grade level and at least one high school grade.

For a K-12 pilot, the experimental and control group should involve 240 students in experimental and control group test administration. If only K-6 is being piloted, then a sample of 120 students is sufficient.

New York State Title IVc

New York State has designed a system of replication management to increase the possibility that exemplary practices are adopted by New York State Schools. This system has 3 stages. Stage 3 relates to project implementation and evaluation. N. Y. State Replicators of the ECOS process can reach Stage 3 showing tangible evidence of success.


STAGE I - STAFF SELECTION AND TRAINING
PROGRAM
TRAINING
EVALUATION
1.1
Designate key contact person
1.2a
Select core staff
1.2b
Orient core group
1.3
Core staff trained by D/D
1.4
Core staff evaluates training
1.5
Core staff develops plan to acquire supplementary or additional competencies
1.6
Core staff acquires additional competencies
STAGE II - PLANNING FOR IMPLEMENTATION
2.1
Define and explain program to key district personnel
2.2
Prepare a plan for implementing evaluation design
2.3
Train additional personnel
2.4
Develop operational plan for program implementation
STAGE III - PROJECT IMPLEMENTATION AND EVALUATION
3.1
Complete initial implementation
3.2
Collect evaluation data
3.2.1
Collect pre-data
3.2.3
Collect post-data
3.2.2
Verify that new practice has been transplanted
3.3
Analyze data
3.4
Prepare written report for:
3.4.1
D/D
3.4.2
NYSED Program

APPLYING THE ECOS PROCESS

Curriculum Development

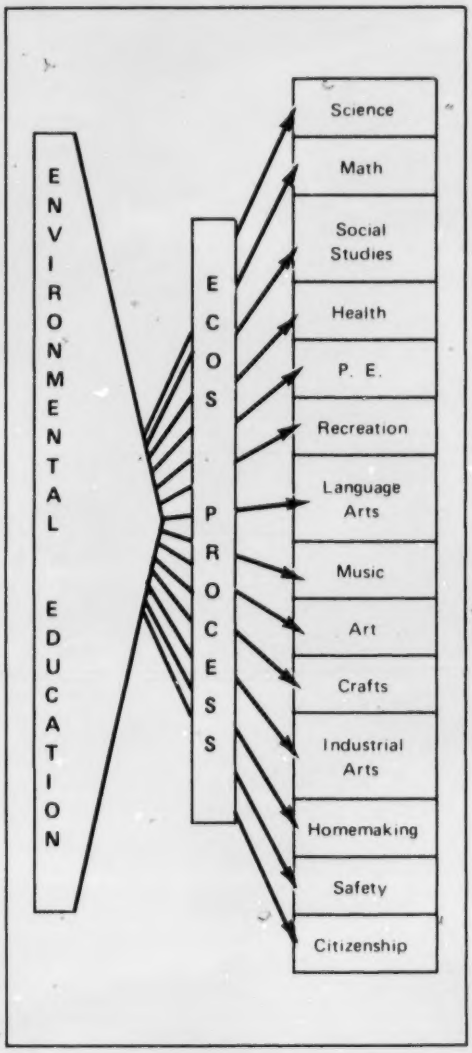
The ECOS process is a method for developing curriculum. By infusing intruder materials or activities into a present program, you retain the best of your present practices. This way the amount, rate and direction of the changes in the curriculum are controlled and the control is in the hands of the educators who are the workshop participants.

The intruder can be a new subject area that is being infused into a present program. For example the new subject could be environmental education. This subject has a known and accepted body of knowledge which is usually considered part of science and social science, but it can also be used as a stimulant to a subject that appears only to be marginally associated with environmental education. Environmental concepts can be found in all subject areas.

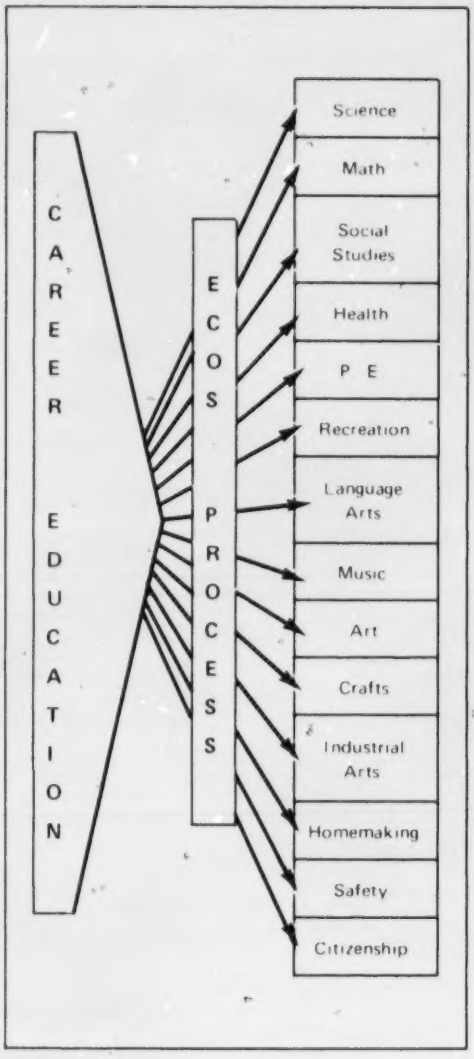
The intruder can be a subject that has a less well defined or accepted content area. For example career education, energy education, consumer education, nutrition education, alcohol and drug education have content areas but they also have strong political, social, economic and cultural influences.

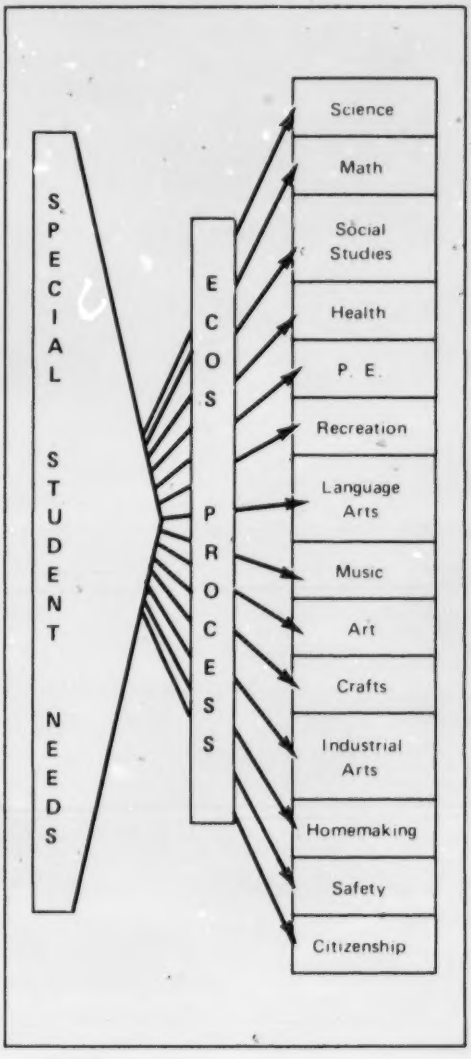
The ECOS process not only enables the infusion of these subjects into a present program but also highlights community involvement and impact.

The intruder can be the needs of the student. Obviously the needs of the student are taken into account in present programs and all curriculum development, but there are often particular groups of students that have special needs. This can be seen in programs for the gifted and talented, special education, and special programs for minorities. In developing new curricula for these students the intruder becomes the special needs of the student and it is the special needs that are infused into the present program.



The ECOS Training Institute has conducted workshops in the ECOS process for curriculum development, environmental education, energy education, career education, nutrition education, alcohol and drug education and because of the flexibility of its approach it enables curriculum innovation without great increases in funding, staffing, material or programming.





THE ECOS PROCESS IN ENVIRONMENTAL EDUCATION

When Project ECOS was started in 1971, it was a federally funded project designed to create and expand environmental programs in schools in the Westchester area of New York State. Since then it has expanded, conducting workshops nationally and internationally. So far workshops in the ECOS process in environmental education have been held in 600 school districts, helping those districts infuse environmental education throughout their curriculum.

Traditionally environmental education can be divided into:

1. Education about the environment.
2. Education in the environment.
3. Education for the environment.
4. Environmental conservation.

Education About the Environment

This contains the generally accepted environmental content of the subject that can be classified as science, including activities in zoology, botany, ecology, geology, astronomy, meteorology, climatology, etc. These activities have specific and specialized bodies of knowledge and are best infused into the sciences, math or social studies. Elements of this content can be used to stimulate other areas of the curriculum.

Education in the Environment

Education in the environment includes all the education that a student receives outside the classroom. The environment outside the classroom provides limitless resources for the educator and student, from the school site, the neighborhood, gardens, parks, cemeteries, industrial sites, museums, zoos, nature centers, farms, forests, lakes, national parks and monuments, historical sites as well as the public utilities and town services.

The education derived from outside the classroom is not specifically scientific. The emphasis can be in any subject area. A field trip is an exciting event and should be used as a stimulant for the entire curriculum. What is best learned inside the classroom should be learned there but there are many areas of the curriculum that are best learned outside the classroom.

By preparing for and analyzing the education experience of a field trip, or outdoor class, and using this as an intruder, the educator can use the ECOS process to infuse this education experience throughout the curriculum. The field trip therefore is not an add-on, but becomes an integral part of the course and educationally justified.

Education For the Environment

Education for the environment encompasses the learning skills for outdoor living, recreation and survival as well as the stewardship of the environment. The specific outdoor education skills should be taught by educators who have those skills and so this controls to some extent where best to infuse these skills into the curriculum.

Education for the environment also includes environmental conservation which is an area of increasing concern of educators and community members.

Environmental Conservation

Environmental conservation includes environmental management. Ecosystems involve man in the natural world but man tends to divide the world into natural and man-made. However, man is inseparable from nature and the false perception that the two systems are independent has led to many of the problems that environmental conservation is trying to correct. It is through the active involvement of people who are aware of the need for conservation, and who are willing to assume responsibility for their and others' actions, that the two systems are seen as one.

Stewardship, a major component of the ECOS process is the development and application of a system of environmental management. A major objective of stewardship is to involve the participants, educators, students and the local community in personal responsibility for the solution of environmental problems, through community interaction. The stewardship activities are then infused into the total curriculum making environmental conservation an integral part of the students education and problem-solving experience.

THE ECOS PROCESS IN CAREER EDUCATION

Education is constantly assailed by the cry "Back to the Basics." What does this cry really mean? It reveals the concern of the community for education to emphasize the acquisition of basic skills and competencies by the students. The question remains which basic skills and competencies in what? Further analysis reveals that the basic skills and competencies advocated are those that the community feels will equip students to enter the world of work. One aspect of the "Back to the Basics" movement is seen as a reflection of the desire of the community for students to receive career education in school so that they are adequately prepared to become effective members of the adult work force.

Career education is a commitment of the schools and the community to help all individuals become aware of, develop, and achieve competence in coping with life and careers, so that both are meaningful, rewarding and satisfying. Therefore career education is too important in the life of the students to be an additional subject added to the curriculum and taught to just a few students as part of a civics or citizenship course. Career education should be for all students, infused throughout the total curriculum. This then prepares all students for their future roles in society but gives added relevance to all the subjects being taught and a meaning for all the students' educational activities.

The steps in a career education pathway are helping the students to:

1. Select a suitable career.
2. Prepare for that career.
3. Attempt to enter that career while still involved in full time education.
4. Find satisfaction in their chosen careers.

Selecting a Suitable Career

In selecting a suitable career the student goes through the phases of career awareness and career exploration. Career awareness cannot start too soon. In the elementary grades students should develop:

1. The right attitudes to work.
2. The foundation of a wholesome attitude towards society and work.
3. An awareness of self in relationship to a career.
4. An awareness of the many occupational careers available.

In career exploration, which takes place during the middle school years, the students should become increasingly familiar with occupational classifications and career clusters, so that they can develop tentative occupational pathways and career choices. In order to do this, students must be able to assess their own interests and abilities as well as an awareness of the relevant factors in decision making, in order to make a career choice. Students should be aware of local community, national and global needs as factors in their decision making.

Career Preparation

In high school the community expects that the student will be able to tie the majority of the educational experience to actual career goals and to acquire occupational skills and knowledge for entry to employment, or prepare for advanced occupational training. Some schools provide cooperative work training so that the students have a realistic work experience in the world of work. Finding satisfaction in a chosen career depends to a large extent on the students' preparation for that career. Students must feel that they have chosen wisely and knowledgeably, that their chosen work pathway has the flexibility of diverse choices, and that they have the opportunity to mold their abilities and desires to their careers.

Career Education Infusion

The concepts and various elements of career education can be infused via the ECOS process throughout the curriculum but infusion has a particular emphasis for "the basics." By infusing career education into a basics program you highlight the relevance of the basics to the students' preparation for a career and also give an added stimulus and relevancy to the learning of basic skills. It is not sufficient just to acquire competency in the basic skills. It is necessary to be able to apply those basic skills, and particularly apply them to the world of work.

The ECOS Training Institute has developed a unique method for infusing career education into basics programs and has held workshops in this process nationally.

THE ECOS PROCESS IN ENERGY EDUCATION

Given the current level of awareness of world wide energy problems and the need to develop alternative energy sources, energy conservation has to be part of every student's education. A basic assumption is that the energy consumer is the primary agent of energy conservation.

Students are an untapped resource, with idealism to carry out the demands of the conservation effort. This way they not only advance their own cognitive development but also perform a vital service to the community.

The Goals of Energy Education

The goals of energy education are to:

1. Heighten student, teacher and community awareness of local and global energy problems.
2. Provide a practical means, within the educational setting for dealing with energy issues.
3. Develop stewardship in energy conservation.

The Objectives of ETI Energy Workshops

The workshop objectives are:

1. To develop awareness of the nature of the energy problems at global, national and local levels.
2. To examine alternative solutions to local energy problems and to use these as the context for workshop activities.
3. To achieve individually and locally a reduction in the use of energy.
4. To help develop an energy conservation ethic.
5. To assist students, teachers and other adults in designing and initiating activities which will conserve energy.
6. To impart the following understandings:

(a) That energy conservation is vital.

(b) That each student and adult in the community has a personal stake in energy conservation and can personally do something about it.

(c) That energy conservation education should be an integral part of the curriculum.

ETI Energy Strategies

Energy conservation can be:

1. Infused into the curriculum via the ECOS process.
2. Attained by community involvement in local energy conservation.
3. Accomplished by energy stewardship activities.

THE ECOS PROCESS IN NUTRITION EDUCATION

Nutrition practices in the United States need to be improved. The community is concerned because many diseases such as obesity, coronary heart disease, hypertension, dental caries, diabetes and some forms of cancer are attributable to chronic dietary imbalances. All diseases require a preventative approach. Correcting diet in adulthood may only have a limited effect on reversing the damage to the body caused by dental caries, artheriosclerosis and hypertension but the progression of the disease can be reduced. Therefore, the early acquisition of sound nutrition and related behaviors should lead to improved health throughout life. An effective way to initiate this is to incorporate nutrition education into the school curricula.

In the spring of 1977, the Senate Select Committee on Nutrition and Human Needs released the staff report "Dietary Goals for the United States." The goals are:

1. Increase carbohydrate consumption to account for 55% to 60% of the caloric intake.
2. Reduce overall fat consumption from approximately 40% to 30% of energy intake.
3. Reduce saturated fat consumption to account for about 10% of total energy intake, and balance that with polyunsaturated and monosaturated fats, which should account for about 10% of energy intake each.
4. Reduce cholesterol consumption to about 300 mg a day.
5. Reduce sugar consumption by about 40% to account for about 15% of total energy intake.
6. Reduce salt consumption by about 50% to 85% to approximately 3 gr a day.

The result of this report and its press reports have led to increased public concern over nutrition education. Most states are now pursuing an active program of nutrition education so that:

1. Nutrition education in schools is initiated and improved.
2. Teachers are aware of nutrition education and can incorporate it into their teaching programs.
3. Food service workers have their nutritional knowledge improved and are encouraged to incorporate this knowledge into the school meal service.
4. Existing resources are coordinated to improve nutrition education statewide.

Nutrition education ultimately influences the food choices of the consumer. To foster positive attitudes towards nutrition it is necessary to apply the relevant factual information with the environmental influences that control decisions about food. An individual's choices regarding food selection is affected by:

1. Local food availability.
2. Finance availability.

3. Knowledge, attitudes and personal preferences

4. Community policy decisions.

5. National policy decisions.

For a child the food choice is mainly controlled by the parent, but with good nutrition education in school it is also possible to influence the parents. Obviously it is best to educate the children and the parents, so effective nutrition education is that which includes positive community involvement.

The ECOS process emphasizes the role of the community and also advocates stewardship. In nutrition education there is the concept that we are stewards of our own bodies. The decisions that we make about food will effect our health. Nutrition education should be infused throughout the curriculum so that all teachers can be included. Any nutrition education program or infused curriculum that has been developed through an E.T.I. workshop will have effective stewardship and community components that will not only increase the success of nutrition education for students but will also benefit the student's families and the local community.

THE ECOS PROCESS IN CONSUMER EDUCATION

Energy education and nutrition education can be considered branches of consumer education. It can also be argued that aspects of environmental education and career education can also be subsumed under consumer education. One of the major goals of education is to teach students to be educated consumers and help them make intelligent choices.

People purchase things, seek value for their money and are consumers. Many industries are directly involved with the consumer and consumer education e.g., the manufacturing industries, banking, advertising, packaging, wholesalers and retailers.

The complexity of the factors involved in making choices are so vast that few adults have the time or knowledge to look carefully at all the issues and implications of even a simple purchase. Therefore, various aspects of consumer education are emphasized at different times usually as the result of highlighting a deficiency. Deficiency in energy leads to energy education programs, deficiency in student health leads to nutrition education programs. Consumer education involves the school and its environment, i.e. the local community, the nation and the world in decision making. It is too important to be an isolated subject on the curriculum but the concepts of consumer education should be infused throughout the curriculum for all students.

THE ECOS PROCESS IN ALCOHOL AND DRUG EDUCATION

Alcohol and drugs are substances that can be consumed and so could be seen as part of consumer education. However the compulsive or excessive use of alcohol and drugs has such a deleterious effect on the user, and often the family, and society, that it needs the emphasis of special alcohol and drug abuse programs.

Alcohol and drug education contain the aspects of prevention and treatment. Prevention programs are most effective when they have the widest possible audience so they should involve the whole school and the local community. Treatment programs are personal and confidential and so deal with individuals.

Alcohol and Drug Abuse Prevention

Alcohol and drug abuse prevention programs have aims and goals that are both cognitive and effective. The cognitive goals should provide students with factual information regarding alcohol and drugs that is within the ability of the students to understand and at their level of development.

The effective goals of alcohol and drug abuse prevention relate to attitudes and values, so that the student can more easily cope with themselves and their environment in a realistic and effective manner.

As the student develops personal attitudes and values the student makes decisions regarding health, both physical and mental, but also develops a favorable self-concept and a respect for self and others. This leads to a general understanding of the role of the environment and its effect on self (i.e. stewardship) as well as an understanding of the attitudes and values of society derived from the cultural and ethnic patterns within the community.

A student's attitudes and values are compounded from personal beliefs and values and those derived from peers, parents, families, friends, educators and the local community.

Developing Alcohol and Drug Abuse Prevention Programs

An effective prevention program should involve the school and the community. The community members involved should depend on the composition of that community but usually include staff from health facilities, hospitals, mental health clinics, rehabilitation centers, the judiciary and police, and the local recreation facilities and religious organizations.

Educators with the cognitive knowledge of alcohol and drugs are obviously involved in the development of prevention programs. When the domain of affective behavior is included, all educators should be involved so that the students meet a wide spectrum of attitudes and beliefs and each can find an educator with whom they can identify and who is in tune with their philosophy and needs.

It could be argued that dealing with small groups of students or even working on a one to one basis is too time consuming for educators. However the ECOS process not only develops a program that has community involve-

ment but also enables educators to select the part of the prevention program applicable to their students and infuse it into their present program without an increase in their teaching load or creating a separate subject.

The ECOS Training Institute has conducted workshops for educators in alcohol and drug prevention programs throughout the nation.

THE ECOS PROCESS IN GIFTED EDUCATION

Special programs for the gifted are constantly being developed and redeveloped as educators realize that many present programs do not cater to their needs. Gifted Education is often further divided into programs for the gifted and programs for the talented following the definition given by the U.S. Office of Education:

"A talented student is defined in terms of performing in the highest 15% among a peer population in both measures of cognitive development and measures of performance or achievement. A gifted student is defined in terms of performing in the highest 3% among a peer population in measures of cognitive development and measures of performance and achievement."

However, there is an increasing tendency to broaden these definitions to include not only those students that demonstrate high achievement in one or more areas but also those who show general intellectual ability, creative thinking, high aptitude in one particular subject, leadership or psychomotor ability. This pressure to expand the categories comes from the educator who sees the need to tailor education to fit the student but also from parents who consider their child to be unique and specially gifted and talented in areas often not recognized by the education system. These parents would like to see the particular strengths of their child fostered by the education system through programs and processes that are designed for their child. Hopefully all students should feel that the education they receive is special for them and designed to enhance their particular gifts.

It is not sufficient to give gifted and talented students an accelerated version of a curriculum designed for average students. It is necessary to design special programs or components of the regular program for these students. The ECOS process enables educators to design programs where the students particular gifts are infused into the program. Therefore it is the students' talents that are identified and become the intruder in the ECOS process.

The teaching of process skills, critical and creative thinking, problem posing and solving, decision making, and logical thinking are also intruders and when these are infused the resulting curriculum will expand the education of the students and increase their satisfaction. Effective gifted and talented programs should not be add-ons to a regular program on a specific subject. Even talented students who have only a high aptitude in one subject area need to be educated to carry over the process skills, critical and creative thinking, problem posing and solving, decision making, and logical thinking into other subjects.

The ECOS process can produce programs that motivate gifted and talented students and perhaps elements of these programs could be infused into the regular students programs thereby increasing everybody's motivation and satisfaction.

THE ECOS PROCESS IN SPECIAL EDUCATION

Over seven million students in the United States have some form of handicap. That is one in ten of the student population, have disabilities that can be classified as emotional, mental, physical or social handicaps. Only about half of these students are enrolled in special education programs although all states provide some kind of education services for handicapped chidren.

The framework for the education of handicapped students is a policy of the "least restrictive alternative." This means that handicapped students are placed in the education system where they can receive the best education at the minimum distance from the mainstream of education. Therefore, as handicapped students improve they move closer to the mainstream so eventually an increasing number of handicapped students are mainstreamed into regular classes for all or part of their education.

Mainstreaming assumes that the classroom teacher of the mainstream class can teach over a wide spectrum of student abilities. The mainstreaming teacher can adapt to a wider range of learning styles, learning rates and needs of students. Teachers may have special children with various types of handicaps in their regular class and must include these students in activities and set a wider range of competence goals. Each type of handicap limits to some degree the handicapped students' ability to learn and participate in non-handicapped classroom activities. Handicapped students meet enough failure and frustration in their general living. Their education should be based on success not failure. "Nothing succeeds like success."

The education that students receive will have to be tailored to their needs. Educators will have to develop a wider range of curriculum, materials and activities that are flexible enough to serve the needs of all students, non-handicapped and handicapped.

The best way to produce a flexible range of curricula, materials and activities is via an E.T.I. workshop. Using the ECOS process the educator can itemize the needs of each student. These needs become the intruders which then are infused into the regular curriculum creating new materials and activities better suited for the students. As the students' needs change so the intruder changes and the results of the infusion change. The kind of change, its direction and rate is under the control of the educator who feeds the change into the education system for the mutual benefit of educator and students.

The ECOS process is a process of curriculum development designed for any subject area and catering to any students' needs. The process, once learned can be continually applied by the trained educators. The ECOS process is still evolving, constantly being improved and refined to provide an education tool for the future. Disciplines still to be developed in education will also benefit from the ECOS process.